

MONTHLY REPORT OF RIVER/FLOOD CONDITIONS

**TO: NATIONAL WEATHER SERVICE
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY
SILVER SPRING, MD 20910**

REPORT FOR:
September 2009

Date: 10/14/09

|Signature: Peter Corrigan

Summary: There was no river flooding and only one confirmed episode of flash flooding in September 2009 in the Blacksburg Hydrologic Service Area (HSA). Mean September precipitation was 3.93" versus the long-term average (1971-2000 normal) for this month of 3.81 inches (75 of the 76 cooperative stations reporting), or 103% of average. Monthly totals at NWS stations ranged from a low of 2.17" at Lynchburg Airport (LYH) in Campbell County, VA to a high of 7.50" at W. Kerr Scott Reservoir (WLKN7) in Wilkes County, NC. Monthly average temperatures were very close to normal, generally within about 1 degree and ranged from a low mean of 63.6°F at Blacksburg (+0.6°) to a high mean of 69.9°F at Danville (-0.5°).

The weather was basically uneventful during the first two weeks of the month with only a few minor precipitation episodes and nothing even approaching flooding. The only event of note was an upper-level low that pushed across the region September 8-10 bringing scattered showers and thunderstorms, mainly along and west of the Blue Ridge. The evening of the 8th saw widely scattered storms over parts of northwest NC and southwest VA. Heavy rains fell over Surry County, NC and produced 1.37" at Raven Knob RAWS (RAVN7), 1.19" of which fell in just 1 hour. As the upper low shifted further east on the 9th rainfall was somewhat more widespread with a few stations picking up in excess of 1 inch rainfall, while the eastern piedmont had basically zero rainfall. Locally heavy rains over the City of Roanoke also produced some urban-type flash flooding which prompted a Flash Flood Warning during the evening of the 9th. The top five 24-hour rain gage amounts ending 12Z on the 10th included Craig Valley RAWS (CGVV2) 2.02", Wilbar DCP (WLBN7) 1.63", Fairwood IFLOWS (FWDV2) 1.51", Lexington IFLOWS (LXGV2) 1.46" and Boone 1 SE COOP (BOON7) 1.32".

A complex weather pattern developed from the 15th to 18th of September as a nearly stationary upper low over the ARKLATEX area interacted with a boundary pushed south across the area by a deepening upper trough over New England. Precipitation developed first in the NC mountains during the overnight of September 15-16 with a few locations receiving over an inch ending at 12Z/16th. Reporting stations included W. Kerr Scott Reservoir (WLKN7) with 1.76" and Boone 1 SE COOP (BOON7) 1.02". The ensuing 24 hours saw the upper system remain nearly stationary with a sharp northern cutoff to the precipitation. For the 24 hours ending at 12Z on the 17th, precipitation ranging from 0.25 to 1.25 inches but was confined to the upper Dan and upper New River basins with little or no rain to the north, except for an isolated area of storms over the

Greenbrier River valley. Rain gage totals included Alderson (ALDW2) 2.62", Busted Rock #1 IFLOWS (BUSV2) 2.08", Renick COOP (RNKW2) 1.73", Samuel Grove Church IFLOWS (SAMV2) 1.68" and Raven Rock Church IFLOWS (RAVV2) 1.48". The upper low drifted slightly southwestward over the next 24 hours, keeping significant rainfall confined again to the far southwestern HSA with an additional 0.10 to 0.50 inches in parts of northwest NC and the far southwest counties for the period ending at 12Z September 18th. The overall synoptic pattern changed very little over the next several days as a developing upper level low over the northern Rockies was combined a ridge aloft over the eastern U.S. The surface high over New England maintained a dry east to northeast flow into the HSA while a moist southerly flow persisted into the southern Appalachians affecting mainly western North Carolina. The bulk of the heavy rainfall remained well south and west of the HSA, but the parts of Watauga, Ashe and Wilkes counties received 1 to 2.5 inches during the 72-hour period ending 12Z on the 21st. The top 72-hour rain gage totals included Triplett DCP (TPTN7) 2.96", Wilbar RG (WLBN7) 2.76, Howards Knob IFLOWS (HKWN7) 2.40", Laurel Springs RAWs (LRLN7) 2.18" and Boone TVA (BONN7) 2.03". Meanwhile, areas to the north and east of about the Roanoke Valleys received essentially no rainfall during this period. Although the moist southeast low-level flow continued on the 21st only light rains of less than 0.25" fell in the far southwestern HSA.

The U.S. Drought Monitor issued on September 22nd, valid through the 20th showed expanding dry conditions across much of the central HSA, with Abnormally Dry (D0) introduced across much of the central HSA including the Roanoke Valley and on into southeast West Virginia.

The onset of astronomical fall on the 22nd saw high pressure off the south Atlantic U.S. coast producing a moist southeast flow of tropical air into the HSA. An area of lift late on the 22nd helped to produce light to moderate rainfall for portions of the piedmont and southern Blue Ridge, mainly covering the far southeastern parts of the HSA. Amounts of 0.25 to over 2 inches fell in the 24-hour period ending at 12Z on the 23rd from Rockingham northeast through Charlotte counties. Rain gage amounts included Critz IFLOWS (CRTV2) 1.94", Chestnut Knob IFLOWS (CHSV2) 1.90", Caswell Games Lands RAWs (CGLN7) 1.30", Yanceyville 4 SE COOP (YAVN7) 1.25" and Reidsville COOP (RDVN7) 0.94". Much lighter amounts fell over the remainder of the region.

September 25-26 saw a slow-moving boundary move into a tropical air mass with precipitable water near 200 percent of normal. A Flash Flood Watch was issued on the 25th for the western portions of the forecast area which was later extended across the central counties. For the initial 24-hours ending at 12Z on the 26th, rainfall was heaviest over the far south and west with some isolated 1-inch plus amounts over Wilkes County, NC and generally between 0.25 to 0.50 inches over the western half of the HSA. The following 24 hours saw widespread moderate to heavy rains across the entire region, ranging from 1 to 3 inches generally with over 4-inch amounts in parts of Mercer County, WV. Three climate stations set daily rainfall records for the 26th including Roanoke Airport (ROA) 2.23" (old record 1.82" set in 1956); Bluefield Airport (BLF) 1.91" (old record 1.10" in 2002); and Blacksburg NWS (BBGV2) 1.74" (old record 0.94" in 1989). The highest 24-hour rain gage totals were Bramwell IFLOWS (BWLW2) 4.73", Mataoka IFLOWS (MATW2) 4.31", Mike Knob IFLOWS (MKTW2) 4.13", Nicholls Knob IFLOWS (NICW2) 3.51" and Tinker Creek IFLOWS (TKSV2) 3.47". In addition, several Flash Flood Warnings were issued for parts of Tazewell, Smyth, Mercer, Roanoke (including cities of Salem and Roanoke). The only reports of flood impacts however came from Tazewell County where a road was closed and a mudslide occurred. Figure 1 below shows the 48-hour MPE rainfall with rain gage amounts overlaid. Despite

the fairly heavy rain rivers did not approach flood stage and even in the far western basins such as the Greenbrier reached only about ½ of bankfull.

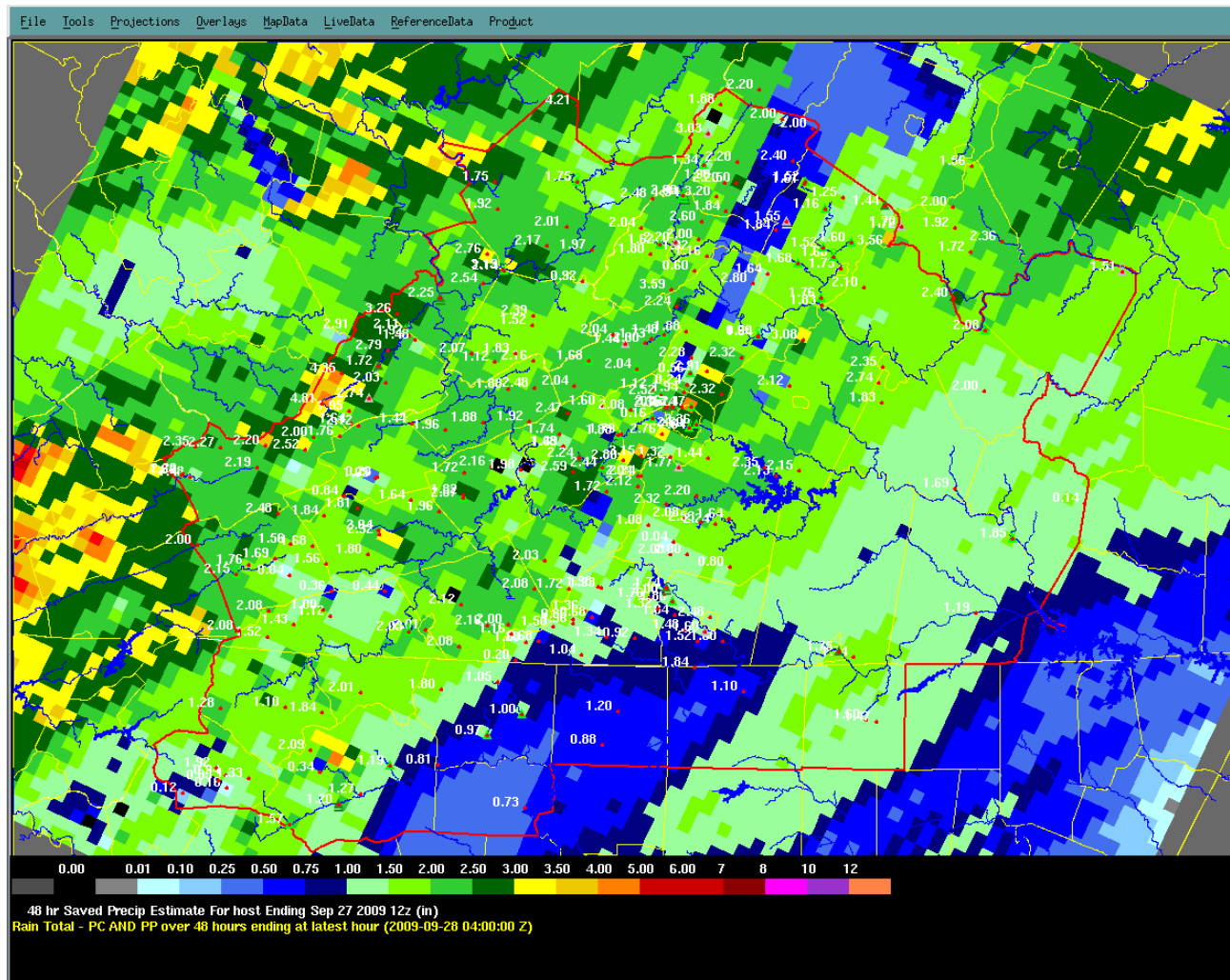


Figure 1: 48-hour MPE rainfall and gages, vt. 12Z, September 27, 2009

The afternoon of the 28th saw a line of strong to severe storms develop over the Virginia piedmont with mainly high winds affecting the area. Rainfall was limited due to the fast-moving line with a band of 0.25 to over 1.00 inch of precipitation across parts of Pittsylvania, Halifax and Charlotte counties.

Non-Routine Hydrologic Product Summary (Sep.):

Flood/Flash Flood Watches (FFARNK): 2

Flood Advisories (Urban/Small Stream - FLSRNK): _

Flash Flood Warnings (FFWRNK): 4

Areal Flood Warnings (FLWRNK): 0

River Flood Warnings (FLWRNK - forecast points): 0

cc:

MIC RNK

NWS HIC

NWS ER

SERFC

LMRFC

OHRFC

MARFC